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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/924,599 | 08/08/2001 | Bhavesh N. Desai | ATT-026CUS | 5258 |
| 22494 | 7590 | 09/16/2005 | EXAMINER | |
| DALY, CROWLEY, MOFFORD & DURKEE, LLP SUITE 301A 354A TURNPIKE STREET CANTON, MA 02021-2714 | | | RYMAN, DANIEL J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2665 | |

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/924,599 | DESAI ET AL. | |
| | Examiner | Art Unit | |
| | Daniel J. Ryman | 2665 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/9/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The reference on page 8, lines 15-18 should be included in an IDS.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: ref. 105 (see page 16, line 19). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: ref. 51a-51d and 53 (see page 14, lines 8-11) and ref. 103 (see page 16, lines 16-25). Corrected drawing sheets in

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compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: on page 18, line 3, "down converter modules 124a-124d" should be "down converter modules 126a-126d" to match Fig. 6; on page 18, line 4, "local oscillators (LO) 126a-126d" should be "local oscillators (LO) 124a-124d" to match Fig. 6; and on page 18, line 5, "down converter 124a" should be "down converter 126a" to match Fig. 6.

Appropriate correction is required.

Claim Objections

5. Claim 3 is objected to because of the following informalities: in line 1, "a packets" should be "a packet". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 12-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 12 recites the limitation "each of the packets" in line 2. There is insufficient antecedent basis for this limitation in the claim. For the purposes of prior art rejections, Examiner will interpret claim 12 to read "originating a plurality of packets at a first source address S, each of the packets".

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Majeti et al. (USPN 5,675,732) in view of Delvaux (USPN 6,775,305).

11. Regarding claims 1, 6, and 7, Majeti discloses a system and method for transmitting signal packets (IP packets), each of the packets having a destination address, from a source (ref. 300) to two or more destinations (ref. 230) (col. 1, lines 53-col. 2, line 18), the system comprising: a router (ref. 210: multiplexing platform unit) having a routing table, said router coupled to receive packets, and to map each packet destination address to a channel modulator using the routing table (col. 2, line 64-col. 3, line 11; col. 4, lines 23-29; and col. 4, line 64-col. 5, line 9), wherein packets are mapped onto a single output channel based upon their original address (col. 2, line 64-col. 3, line 11).

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Majeti does not expressly disclose a router having at least two address groups, said router to map each packet destination address to one of the address groups; and a tunnel source having an input coupled to said router and having an output and wherein for the packets having an original destination address which belongs to the first address group of said router, the tunnel source assigns each packet it receives to one of a plurality of addresses, each address being associated with a tunnel destination wherein each one of the tunnel destination addresses is mapped to an output channel and wherein for packets having an original destination address belonging to the second address group of said router are mapped onto a single output channel based upon their original address. However, Majeti does disclose that the router uses a routing table to map destination addresses onto output channels (col. 4, lines 23-29 and col. 4, line 64-col. 5, line 9) wherein packets are mapped onto a single output channel based upon their original address (col. 2, line 64-col. 3, line 11).

Delvaux teaches, in a packet switching network used in the "last-mile" (col. 8, lines 5-18), using a tunnel source (col. 16, lines 52-60: tunneled packet encapsulated to form a TPDU) having an input coupled to a switch and having an output and wherein the tunnel source assigns each packet it receives to one of a plurality of addresses (inverse multiplexing), each address being associated with a tunnel destination wherein each one of the tunnel destination addresses is mapped to an output channel (col. 6, lines 15-47). Delvaux's system increases an individual user's data rate while maintaining data sequence order (col. 1, lines 14-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a tunnel source having an input coupled to said router and having an output and wherein the tunnel source assigns each packet it receives to one of a plurality of addresses, each address being associated

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with a tunnel destination wherein each one of the tunnel destination addresses is mapped to an output channel.

Delvaux also teaches varying the number of parallel connections as a function of the expected load in order to provide better granularity (col. 1, lines 26-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the router have at least two address groups, said router to map each packet destination address to one of the address groups, wherein for the packets having an original destination address which belongs to the first address group of said router, the tunnel source assigns each packet it receives to one of a plurality of addresses and wherein for packets having an original destination address belonging to the second address group of said router are mapped onto a single output channel based upon their original address in order to vary the number of parallel connections as a function of the expected load in order to provide better granularity by permitting connections requiring only a single channel to use a single channel and connections requiring multiple channels to use multiple channels.

12. Regarding claims 2 and 8, Majeti in view of Delvaux discloses that a new address of a packet is based upon the state of the output channels (Majeti: col. 4, lines 44-51) where an occupied channel will not be assigned a new connection.

13. Regarding claims 3 and 9, Majeti in view of Delvaux discloses that a new address of a packet is based upon Quality of Service requirements (Majeti: col. 5, lines 48-52).

14. Regarding claims 4 and 10, Majeti in view of Delvaux discloses that a new address of a packet is based upon traffic demands (Majeti: col. 4, lines 44-51 and Delvaux: 26-34).

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15. Regarding claims 5 and 11, Majeti in view of Delvaux discloses that said tunnel source corresponds to an IP tunnel source; and said tunnel destination corresponds to an IP tunnel destination (Majeti: col. 2, line 64-col. 3, line 11 and Delvaux: col. 16, lines 52-60) where Majeti's connections are IP connections.

16. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Majeti et al. (USPN 5,675,732) in view of Delvaux (USPN 6,775,305) in further view of Tomlins (USPN 6,618,383).

17. Regarding claim 12, incorporating the rejection of claims 1, 6, and 7, Majeti in view of Delvaux discloses each limitation of claim 12, as outlined in the rejection of claims 1, 6, and 7, where the CMTS is broadly defined to be equivalent to Majeti's Multiplexing Platform (ref. 210), except that a packet in the first address space is divided into a plurality of sub-packets. Tomlins teaches, in a parallel transmission system, dividing a packet into a plurality of sub-packets in order to minimize or obviate the use of null or padding data (col. 2, lines 38-54). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to divide a packet into a plurality of sub-packets before sending the packet using parallel transmission in order to minimize or obviate the use of null or padding data.

18. Regarding claim 13, Majeti in view of Delvaux in further view of Tomlins discloses receiving the encapsulated sub-packets at the tunnel destination; combining the channels to provide the original packets; and forwarding the packets in their original order to the destination (Delvaux: col. 17, lines 25-60 and Tomlins: col. 3, line 62-col. 4, line 7).

19. Regarding claim 14, Majeti in view of Delvaux in further view of Tomlins discloses that combining the channels comprises removing the encapsulation headers from each of the

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encapsulated sub-packets to again provide the original packets (Tomlins: col. 3, line 62-col. 4, line 7) where SAR implies that the sub-packets of the segmented packet will be reassembled into the original packet by stripping the headers of the sub-packets.

20. Regarding claim 15, Majeti in view of Delvaux in further view of Tomlins discloses that encapsulating comprises: generating a new packet having a payload field (Tomlins: col. 2, lines 38-54); placing the original packet in the payload field of the new packet (Tomlins: col. 2, lines 38-54); and adding a new packet header to the new packet with the new packet header having a source address corresponding to the address T1 and a destination address corresponding to one of a plurality of separate IP interfaces on the tunnel destination and wherein the destination address is part of an L address space and wherein each address pair formed by the source address of the new packet header and the destination address of the tunnel defines a separate tunnel (Majeti: col. 4, lines 23-29 and col. 4, line 64-col. 5, line 9Tomlins: col. 2, lines 38-54).

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sheeran (USPN 6,909,726) see entire document which pertain to a cable TV system that employs variable bandwidth. DeGrandpre et al. (USPN 6,678,275) see entire document which pertains to a multilink system that distinguishes between data sent in a single channel and data send over a multilink channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJR

Daniel J. Ryman
Examiner
Art Unit 2665



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